



# EFFECT OF VEDIC MATHEMATICS ON ACHIEVEMENT IN ALGEBRA AMONG ADOLESCENT STUDENTS

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## ABSTRACT

The present study aimed to study the effect of Vedic Mathematics on achievement in algebra among adolescents with respect to different levels of intelligence. The study revealed that the mean score of experimental group is greater than the controlled group, which proves that Vedic mathematics is more effective than conventional method. This technique can be more useful for high intelligence group and average intelligence group. This study also indicates that there was no significant difference in the gain scores on achievement in Mathematics due to interactional effect of instructional strategies and intelligence. Technique of vedic mathematics is very helpful in competitive exam where learner have to solve lengthy mathematical problem in short span of time.

**KEYWORDS:** Vedic mathematics, Short span of time, sixteen sutras, easy and quick calculations.

## INTRODUCTION

Mathematics is a science dealing with study of quantities and their relationships expressed in numbers and other special symbols. Mathematics helps counting, measuring & comparing things. Addition, subtraction, multiplication and divisions are the basic operations of the mathematics, through which we can define and develop many more operations suiting our practical situation. Mathematics makes our life orderly and prevents chaos. Certain qualities that are nurtured by mathematics are power of reasoning, creativity, abstract or spatial thinking, critical thinking, problem-solving ability and even effective communication skills. In support of above views I quote Francis Bacon's view which he expressed in his famous essay 'Of Studies' that Mathematics makes intellectually sharp to learner. Mathematics is the base of all creations, without which the world cannot move an inch. Be it a cook or a farmer, a carpenter or a mechanic, a shopkeeper or a doctor, an engineer or a scientist, a musician or a magician, an astrologer everyone needs mathematics in their day-to-day life. Even insects use mathematics in their everyday life for existence. Experience says learning mathematics can be made easier and enjoyable if our curriculum includes mathematical activities and games. Maths puzzles and riddles encourage and attract an alert and open-minded attitude among youngsters and help them develop clarity in their thinking. Emphasis should be laid on development of clear concept in mathematics in a child, right from the primary classes. But many students feel fear about mathematics because of long formulas and calculations, to avoid these fear and anxiety about mathematics, vedic mathematics is a new technique which is very original and totally unconventional and provides a new thinking and approach for Mathematical calculations. The system of Vedic Mathematics encourages mental calculations. Vedic Mathematics is easy, simple, direct and straightforward. Vedic Mathematics helps in understanding of Mathematics and enriches our knowledge of the subject. Vedic Mathematics methods come to us as a boon for all competitions. Today's mathematics requires much effort in learning and to understand. Vedic Mathematics being most natural way of working can be learnt and mastered with very little efforts and in very short time. Vedic Mathematics also provides a system of checking the calculations and getting the correct results. If you make the habit of applying the simple and quick checks at different stages of working, we move on confidently after confirming the correctness of work. Nicholas (1984) viewed Vedic mathematics system as one of the most delightful chapters of the 20th century mathematical history. Gupta (1989) opined that this system has great educational value because the Sutras contain techniques for performing some elementary mathematical operations in simple ways, and results are obtained quickly. According to Russell (2008) 'Mathematics may be defined as the subject in which we never know what we are talking about, not whether what we are saying is true'. According to Stone (2008) 'Mathematics is the study of abstract system built of abstract elements. These elements are not described in concrete fashion'. Vedic mathematics is the ancient system of mathematics which was rediscovered from Vedas between 1911-1918 by Sri Bharati Krishna Tirthaji. He is a scholar of Sanskrit, Mathematics, History and Philosophy, after lengthy and careful investigation was able to reconstruct the mathematics of Vedas. According to Tirthaji all mathematics is based on sixteen sutras. He wrote a book: Vedic Mathematics in 1965. The term Vedic Mathematics now refers to a set of sixteen sutras and their corollaries derived from Vedas.

## SIGNIFICANCE OF THE PROBLEM

Many students now a day facing problem in solving mathematical problem and most commonly they are unable to connect the abstract or conceptual aspects of mathematics with reality. It is observed that students find mathematics difficult due to long multiplication and division as basic. and have problem in applying

mathematical formula in practical life. Learning mathematics is an unpleasant experience to some students mainly because it involves mental exercise. Usually students complaint that mathematics is a difficult, dull and confusing subject. In fact, it is not difficult, but the system which is being used to teach mathematics is making the subject abstract and difficult. In order to enable a child learn mathematics in an easy way, it is necessary to get him acquainted with alternative system like 'Vedic Mathematics'. Such a system not only creates interest in the subject but also provides for easy and quick calculations. Therefore, the present study have been undertaken to see the effectiveness of Vedic Mathematics over traditional method of teaching of mathematics.

## STATEMENT OF THE PROBLEM

EFFECT OF VEDIC MATHEMATICS ON ACHIEVEMENT IN ALGEBRA AMONG ADOLESCENT STUDENTS IN RELATION TO THEIR INTELLIGENCE

## OBJECTIVES

1. To study the effect of Vedic Mathematics on the achievement in algebra of adolescents.

## HYPOTHESES

1. There is no significant difference in achievement in algebra between experimental group and control group.

## SAMPLE

For this investigation 120 students of class IX were randomly taken from Ajanta Public school and Harkrishan public school of Amritsar city. After selecting the school, the students sample was drawn randomly. The students were randomly divided into two groups. The sample consisted of total 120 students of class IX. 60 students were taken from each school. These 60 students were further divided into two groups of 34 from ajanta public school and 26 from harkrishan public school each for the experimental group and 33 students from ajanta public school and 27 students from harkrishan public school for traditional group.

## TOOLS USED

1. Group General test of Intelligence by Ahuja (1990) was administered to equate the students on the basis of intelligence test scores.
2. Vedic Mathematics programme was developed by the investigator.

## 5.16 STATISTICAL ANALYSIS

The statistical techniques are employed to present a concise picture of the whole data so that it can be easily comprehended. It is employed to test the hypothesis. In this study the following techniques were used:

### Inferential statistics

- i) Two way ANOVA (2 X 3) factorial design, t-ratios were employed to study;
- ii) Graphical statistics was used for graphical representation
- a) To show comparison of means of pre-test scores of experimental and control group
- b) Analysis of variance on gain achievement scores.

- c) To show difference between the achievement of group taught through Vedic mathematics and group taught through conventional method.

### 5.17 FINDINGS AND CONCLUSION

Hypothesis wise discussion of the results has been undertaken to arrive at some conclusions.

#### HYPOTHESIS-I

“There is no significant difference in achievement in algebra between experimental group and control group”.

Table 4.3: Difference between the achievement of group taught through Vedic mathematics and group taught through conventional method.

Group	N	Mean	S.D.	SED	t-value
Control group	60	7.7917	4.89491	0.89	4.56**
Experimental group	60	11.8833	4.93377		

\*\*Significant at 0.01 level

(Critical Value 1.98 at 0.05 and 2.62 at 0.01 level, df 118)

From table 4.3 it is found that the value mean scores and S.D. of experimental group is 11.88 and 4.93 respectively and the value mean score and S.D. of controlled group is 7.79 and 4.89 respectively. The t-value testing the significance of mean difference between the achievements of experimental group (taught through vedic mathematics) and controlled group came out to be 4.56 which is significant at 0.01 level. Since the t-value testing the significance of mean difference between the achievement of experimental group and controlled group came out to be significant. Hence the hypothesis, “There is no significant difference in achievement in algebra of group taught through Vedic Mathematics and group taught through conventional method is rejected. Thus it shows that there is significant difference between the achievement of controlled group and experimental group. As the mean score of experimental group is greater than the controlled group, which proves that Vedic mathematics is more effective than conventional method.

### DISCUSSION

Vasant V Shastri, Alex Hankey, Bhawna Sharma, Sanjib Patra(2016) found in his study that The VM and Yogic breathing groups showed slight improvement in cognitive skills and slight decrease in math-anxiety compared to the Jogging group. The study shows, Vedic Mathematics workshop improved mathematical abilities by decreasing the math-anxiety which might have helped enhance their cognitive skills. The calming effect of the pranayama practices is the probable cause for YM group improvements.

### EDUCATIONAL IMPLICATIONS

Vedic Mathematics approach plays an important role to improve the achievement of students in mathematics because this technique is very helpful in competitive exam where learner have to solve lengthy mathematical problem in short span of time. this technique remove fear about mathematics from the mind of students .this technique make the lengthy calculations of mathematics very easy this technique takes lesser time than conventional method to solve any mathematical problem .this technique can be more useful for high intelligence group and average intelligence group .this technique is successful for the students of secondary level.

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